



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,244	03/02/2004	Rui Yang	I-2-0455.IUS	3614
24374	7590	06/26/2007		
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			EXAMINER FILE, ERIN M	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 06/26/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

sf

<b>Office Action Summary</b>	Application No. 10/791,244	Applicant(s) YANG ET AL.	
	Examiner Erin M. File	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,8,11,13,14,17,19,20,23,25,26 and 29 is/are rejected.
- 7) ☐ Claim(s) 3,4,6,9,10,12,15,16,18,21,22,24,27,28 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/16/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 7, 8, 13, 14, 19, 20, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Krupka (U.S. Pub. No. 2003/0210752) in view of Frank (U.S. pub. No. 2002/0136158).

**Claim 1, 7, 13, 19, 25, Krupka discloses:**

- producing a received vector (fig. 6, sampler 22 creates a "vector" of received signal samples);
- for use in estimating a desired portion of data of the received vector, determining a past, a center and a future portion of a channel estimate matrix, the past portion associated with a portion of the received signal prior to the desired portion of the data, the future portion associated with a portion of the received vector after the desired portion of the data and the center portion associated with a portion of the received vector associated with the desired data portion (fig. 6, calculate an a late channel estimate 88, 94, a center channel estimate, 90, 96, and an early channel estimate, 92, 98);

- estimating the desired portion of the data without effectively truncating detected data, the estimating the desired portion of the data uses a minimum mean square error algorithm having inputs of the center portion of the channel estimate matrix and a portion of the received vector ([0013]-[0014], [0018] discloses the truncation occurs on the error or noise, effectively not truncating the detected data)

Krupka fails to disclose using the past and future portions of the channel estimate matrix for adjusting factors in the minimum mean square error algorithm, however, Frank discloses using the channel estimates for adjusting factors in the minimum mean square error algorithm ([0010]). Because the use of update in the mean squared error is well known in the art for the advantage of more quickly reducing the error in the estimation, it would have been obvious to one skilled in the art at the time of invention to incorporate the minimum mean squared error estimation updating technique of Frank into the invention of Krupka

**Claim 2, 8, 14, 20, 26**, Frank further discloses the received vector comprises at least one code division multiple access signal and the estimated desired portion of the data produces a portion of a spread data vector ([0003]).

3. Claims 5, 11, 17, 23, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krupka (U.S. Pub. No. 2003/0210752) and Frank (U.S. pub. No. 2002/0136158) as applied to claims 1, 7, 13, 19, 25 above, and further in view of Raphaelli (U.S. Pub. No. 2004/0240595).

**Claims 5, 11, 17, 23, 29**, neither Krupka nor Frank disclose the data estimation is performed using a sliding window approach and the desired portion of data of the received vector is a center portion of the window, however, Raphaeli discloses data estimation is performed using a sliding window approach and the desired portion of data of the received vector is a center portion of the window ([0015], [0075], [0095]). Sliding windows correlation methods are well known in the art for the advantages of reducing high frequency/low incidence noise and being easy to implement in hardware. Because of these advantage, it would have been obvious to one skilled in the art at the time of invention to incorporate the sliding window as disclose by Raphaeli into the combined invention of Krupka and Frank.

***Allowable Subject Matter***

4. Claims 31 and 32 are allowed.
5. Claims 3, 4, 6, 9, 10, 12, 15, 16, 18, 21, 22, 24, 27, 28, and 30 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is 5712726040. The examiner can normally be reached on M-F 1-9:30PM.

Art Unit: 2611

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 5712723024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin M. File/  
Assistant Examiner, AU 2611  
6/11/2007

  
DAVID C. PAYNE  
SUPERVISORY PATENT EXAMINER